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Dated: 4-15-05 Signature: Norman Green
(Norman Green)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the application of:

Thomas L. CANTOR

Serial No.: 09/928,048

Filing Date: August 10, 2001

For: METHODS AND DEVICES FOR
DIRECT DETERMINATION OF
CYCLASE INHIBITING
PARATHYROID HORMONE

Examiner: G. COUNTS

Group Art Unit: 1641

DECLARATION OF THOMAS L. CANTOR
PURSUANT TO 37 C.F.R § 1.132

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

I, Thomas L. Cantor, in my individual capacity, hereby declare as follows:

1. I am the inventor of the above-referenced patent application, and am familiar with the contents thereof.

2. I have reviewed the publication entitled "Amino-Terminal Form of Parathyroid Hormone (PTH) with Immunologic Similarities to hPTH (1-84) Is Overproduced in Primary and Secondary Hyperparathyroidism," *Clinical Chemistry*, 49(12), 2037-44 (2003), referred to herein

as the D'Amour reference, and am familiar with its contents. I am one of the authors of the publication.

3. The publication describes a novel form of human parathyroid hormone, referred to herein as the "novel form of hPTH", which is relatively abundant in patients having primary or secondary hyperparathyroidism.

4. The novel form of hPTH is recognized by the CA-PTH immunoassay, which selectively binds to the N-terminal portion of normal hPTH. The CA-PTH assay detects PTH 1-84 (hPTH) but does not detect PTH 7-84 or other truncated forms lacking the first few amino acids. D'Amour at pg. 2040, first col. This suggests that the novel form of hPTH has the same N-terminal amino acid sequence as normal hPTH.

5. The novel form of hPTH is also recognized by the C-PTH immunoassay, which selectively binds to the C-terminal portion of hPTH. D'Amour at pg. 2043, first col. C-PTH recognizes PTH 65-84 and longer forms of hPTH that include the 65-84 segment. D'Amour at pg. 2040, first col. This suggests that the novel form of hPTH has the same or nearly the same C-terminal amino acid sequence as hPTH.

6. These results suggest that the novel form of hPTH has the full amino acid sequence of hPTH, or nearly so, because it is recognized by antibodies that are selective for each end of normal hPTH. D'Amour ref., pg. 2043, first col.

7. The structure of the novel form of hPTH was not determined other than by its immunological characterization. However, D'Amour provides evidence that the novel form of hPTH is not an oxidized version of hPTH or of PTH 7-84. Both PTH 1-84 and PTH 7-84 were chemically oxidized. Each oxidized species exhibited a different HPLC retention time from the novel form of hPTH. D'Amour at pg. 241, second col. The oxidized species also exhibited different reactivity toward immunoassays from the novel form of hPTH. D'Amour, fig. 4.

8. The novel form of hPTH is not recognized, or is barely recognized, by a third immunoassay referred to as the T-PTH assay. D'Amour at pg. 2040, first col. The T-PTH assay is believed to bind to an epitope of hPTH in the 15-20 region. D'Amour ref. at pp. 2044-2043.

9. The T-PTH assay detects PTH 1-84, which is the normal form of hPTH, and it detects PTH 7-84, which is a truncated form of hPTH in which the first six amino acids have been removed. Thus the T-PTH assay recognizes an epitope that is present on PTH 7-84 that is apparently not accessible for binding on the novel form of hPTH, even though that epitope should be present since the amino acid sequence seems to be intact in the novel form of hPTH.

10. The T-PTH antibody assay was developed by the Scantibodies research group while I was the President and CEO of Scantibodies Laboratory.

11. Scantibodies' records demonstrate that the detection antibody for the T-PTH assay was produced before March, 2000.

12. A kit embodying the T-PTH assay system, including the detection antibody, was approved by the FDA in April of 2001. A copy of the approval letter is attached as **Exhibit H**.

13. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

A handwritten signature in black ink, appearing to read "Cantor".

April 7, 2005

Thomas L. Cantor